

FILE 'HOME' ENTERED AT 19:41:28 ON 02 MAR 97

=> file medline caplus biosis scisearch
COST IN U.S. DOLLARS

FULL ESTIMATED COST

SINCE FILE	TOTAL
ENTRY	SESSION
0.30	0.30

FILE 'MEDLINE' ENTERED AT 19:42:37 ON 02 MAR 97

FILE 'CAPLUS' ENTERED AT 19:42:37 ON 02 MAR 97
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FILE 'SCISEARCH' ENTERED AT 19:42:37 ON 02 MAR 97
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=> s (interneuron?(p)cholinergic?)

L1 410 FILE MEDLINE

L2 392 FILE CAPLUS

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH

FIELD CODE - 'AND' OPERATOR ASSUMED 'TERNEURON?(P)CHOLINERGI'

L3 447 FILE BIOSIS

L4 248 FILE SCISEARCH

TOTAL FOR ALL FILES

L5 1497 (INTERNEURON?(P) CHOLINERGIC?)

=> cholinergic? interneuron?

'CHOLINERGIC?' IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s cholinergic? interneuron?

L6 170 FILE MEDLINE

L7 187 FILE CAPLUS

L8 185 FILE BIOSIS

L9 113 FILE SCISEARCH

TOTAL FOR ALL FILES

L10 655 CHOLINERGIC? INTERNEURON?

=> dup rem

ENTER L# LIST OR (END):L10

PROCESSING IS APPROXIMATELY 82% COMPLETE FOR L10

PROCESSING COMPLETED FOR L10

L11 270 DUP REM L10 (385 DUPLICATES REMOVED)

=> S L11 AND (SPIN? CORD? OR SPIN? CHORD?)

L12 170 S L11

L13 4 FILE MEDLINE
 L14 63 L11
 L15 1 FILE CAPLUS
 L16 27 S L11
 L17 0 FILE BIOSIS
 L18 10 S L11
 L19 0 FILE SCISEARCH

TOTAL FOR ALL FILES

L20 5 L11 AND (SPIN? CORD? OR SPIN? CHORD?)

=> D 1-5

L20 ANSWER 1 OF 5 MEDLINE
 AN 96281645 MEDLINE
 TI Nonradial migration of interneurons can be experimentally altered in
 spinal cord slice cultures.
 AU Phelps P E; Barber R P; Vaughn J E
 CS Division of Neurosciences, Beckman Research Institute of the City of
 Hope, California 91010-0269, USA.
 NC NS 18858 (NINDS)
 SO DEVELOPMENT, (1996 Jul) 122 (7) 2013-22.
 Journal code: ECW. ISSN: 0950-1991.
 CY ENGLAND: United Kingdom
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 9610

L20 ANSWER 2 OF 5 MEDLINE
 AN 92379641 MEDLINE
 TI Inhibition of a cutaneous nociceptive reflex by a noxious visceral
 stimulus is mediated by spinal cholinergic and descending
 serotonergic systems in the rat.
 AU Zhuo M; Gebhart G F
 CS Department of Pharmacology, College of Medicine, University of Iowa,
 Iowa City 52242..
 NC NS 19912 (NINDS)
 SO BRAIN RESEARCH, (1992 Jul 10) 585 (1-2) 7-18.
 Journal code: B5L. ISSN: 0006-8993.
 CY Netherlands
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 9212

L20 ANSWER 3 OF 5 MEDLINE
 AN 92098770 MEDLINE
 TI Generation patterns of immunocytochemically identified cholinergic
 neurons at autonomic levels of the rat spinal cord
 AU Barber R P; Phelps P E; Vaughn J E
 CS Division of Neurosciences, Beckman Research Institute of the City of
 Hope, Duarte, California 91010..
 NC NS25784 (NINDS)
 SO JOURNAL OF COMPARATIVE NEUROLOGY, (1991 Sep 22) 311 (4) 509-19.
 Journal code: HUV. ISSN: 0021-9967.
 CY United States

DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 9204

L20 ANSWER 4 OF 5 MEDLINE
AN 90277873 MEDLINE
TI Choline acetyltransferase-immunoreactive profiles are presynaptic to
primary sensory fibers in the rat superficial dorsal horn.
AU Ribeiro-da-Silva A; Cuello A C
CS Department of Pharmacology and Therapeutics, McGill University,
Montreal, Quebec, Canada..
NC NS26415 (NINDS)
SO JOURNAL OF COMPARATIVE NEUROLOGY, (1990 May 15) 295 (3) 370-84.
Journal code: HUV. ISSN: 0021-9967.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 9009

L20 ANSWER 5 OF 5 CAPLUS COPYRIGHT 1997 ACS
AN 1992:584960 CAPLUS
DN 117:184960
TI Nerve growth factor and cholinergic neurons of the mammalian brain
AU Hefti, F.; Hartikka, J.; Knusel, B.; LaPlume, M. O.; Mash, D. C.
CS Sch. Med., Univ. Miami, Miami, FL, 33101, USA
SO Brain Cholinergic Syst. (1990), 173-201. Editor(s): Steriade,
Mircea; Biesold, Dietmar. Publisher: Oxford Univ. Press, Oxford, UK.
CODEN: 58HPAV
DT Conference; General Review
LA English

=> D 3 ALL

L20 ANSWER 3 OF 5 MEDLINE
AN 92098770 MEDLINE

TI Generation patterns of immunocytochemically identified cholinergic neurons at autonomic levels of the rat **spinal cord**

AU Barber R P; Phelps P E; Vaughn J E
CS Division of Neurosciences, Beckman Research Institute of the City of Hope, Duarte, California 91010..
NC NS25784 (NINDS)

SO JOURNAL OF COMPARATIVE NEUROLOGY, (1991 Sep 22) 311 (4) 509-19.
Journal code: HUV. ISSN: 0021-9967.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 9204

AB The time at which a neuron is "born" appears to have significant consequences for the cell's subsequent differentiation. As part of a continuing investigation of cholinergic neuronal development, we have combined ChAT immunocytochemistry and [3H]thymidine autoradiography to determine the generation patterns of somatic and autonomic motor neurons at upper thoracic (T1-3), upper lumbar (L1-3), and lumbosacral (L6-S1) levels of the rat **spinal cord**. Additionally, the generation patterns of two subsets of **cholinergic interneurons** (partition cells and central canal cluster cells) were compared with those of somatic and autonomic motor neurons. Embryonic day 11 (E11) was the first day of cholinergic neuronal generation at each of the three spinal levels studied, and it also was the peak generation day for somatic and autonomic neurons in the upper thoracic **spinal cord**. The peak generation of homologous neurons at upper lumbar and lumbosacral spinal levels occurred at E12 and E13, respectively. Somatic and autonomic motor neurons were generated synchronously, and their production at each rostrocaudal level was virtually completed within a 2-day period. **Cholinergic interneurons** were generated 1 or 2 days later than motor neurons at the same rostrocaudal level. In summary, the birthdays of all spinal cholinergic neurons studied followed the general rostrocaudal spatiotemporal gradient of spinal neurogenesis. In addition, the generation of **cholinergic interneurons** also followed the general ventrodorsal gradient. In contrast, however, autonomic motor neurons disobeyed the rule of a ventral-to-dorsal progression of spinal neuronal generation, thus adding another example in which autonomic motor neurons display unusual developmental patterns.

CT Check Tags: Animal; Comparative Study; Female; Male; Support, U.S. Gov't, P.H.S.

*Acetylcholine: PH, physiology
*Autonomic Nervous System: CY, cytology
Autoradiography
Cell Cycle: PH, physiology

Choline Acetyltransferase: AN, analysis
 Immunochemical Techniques
 Interneurons: CH, chemistry
 *Interneurons: CY, cytology
 Motor Neurons: CH, chemistry
 *Motor Neurons: CY, cytology
 Phenotype
 Rats
 Rats, Inbred Strains
 *Spinal Cord: CY, cytology
 RN 51-84-3 (Acetylcholine)
 CN EC 2.3.1.6 (Choline Acetyltransferase)

=> D 5 ALL

L20 ANSWER 5 OF 5 CAPLUS COPYRIGHT 1997 ACS
 AN 1992:584960 CAPLUS
 DN 117:184960
 TI Nerve growth factor and cholinergic neurons of the mammalian brain
 AU Hefti, F.; Hartikka, J.; Knusel, B.; LaPlume, M. O.; Mash, D. C.
 CS Sch. Med., Univ. Miami, Miami, FL, 33101, USA
 SO Brain Cholinergic Syst. (1990), 173-201. Editor(s): Steriade, Mircea; Biesold, Dietmar. Publisher: Oxford Univ. Press, Oxford, UK. CODEN: 58HPAV
 DT Conference; General Review
 LA English
 CC 2-0 (Mammalian Hormones)
 AB A review, with 119 refs., on NGF and cholinergic neurons of the mammalian brain. NGF plays an important role in the development of basal forebrain cholinergic neurons, and these cells remain responsive to NGF during their entire lifespan. **Cholinergic interneurons** of the corpus striatum are responsive to NGF during early development but down-regulate their NGF-responsive mechanisms at later stages. Cholinergic neurons of the pontine reticular formation are not sensitive to the NGF, and **spinal cord** motoneurons transiently express NGF receptors during development but these receptors do not mediate trophic effects of NGF.
 ST review NGF cholinergic neuron brain
 IT Development, mammalian
 (nerve growth factor effect on brain regions in)
 IT Brain
 (nerve growth factor effect on cholinergic neurons of regions of, developmental stage in relation to)
 IT **Spinal cord**
 (nerve growth factor receptors of motor neurons of, in development)
 IT Nerve
 (cholinergic, nerve growth factor effect on, in brain)
 IT Brain
 (corpus striatum, cholinergic neurons of, NGF effect on, developmental stage in relation to)
 IT Receptors
 RL: BIOL (Biological study)
 (nerve growth factor, of **spinal cord** motor neurons, in development)
 IT Brain
 (prosencephalon, basal, cholinergic neurons of, NGF role in

development of)
IT 9061-61-4 GF
RL: BIOL (Biological study)
(cholinergic neurons of brain response to)

=> D 4 ALL

L20 ANSWER 4 OF 5 MEDLINE
AN 90277873 MEDLINE
TI Choline acetyltransferase-immunoreactive profiles are presynaptic to primary sensory fibers in the rat superficial dorsal horn.
AU Ribeiro-da-Silva A; Cuello A C
CS Department of Pharmacology and Therapeutics, McGill University, Montreal, Quebec, Canada..
NC NS26415 (NINDS)
SO JOURNAL OF COMPARATIVE NEUROLOGY, (1990 May 15) 295 (3) 370-84.
Journal code: HUV. ISSN: 0021-9967.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 9009
AB The specific aim of this study was to search for morphological counterparts to the known antinociceptive effects of cholinomimetic drugs at the **spinal cord** level. For this, the light microscopic and ultrastructural distribution of choline acetyltransferase immunoreactivity was studied in laminae I-III of the rat cervical **spinal cord**. Immunoreactivity was present in cell bodies in lamina III, and in dendrites and axons of all three laminae. Immunoreactive axonal varicosities were often presynaptic to the central varicosities of type II synaptic glomeruli in lamina II and lamina III, less often presynaptic to the central elements of type I glomeruli in lamina II, and often presynaptic to dendrites in both type I and type II glomeruli. In addition, immunoreactive dendrites were often postsynaptic to the central varicosities of glomeruli of all morphological types. These results indicate that 1) primary sensory fibers excite **cholinergic interneurons**; 2) the acetylcholine released by the axon terminals of these interneurons modulates both nociceptive and non-nociceptive sensory information at the **spinal cord** level through both pre- and postsynaptic mechanisms. Furthermore, our results reinforce current ideas on reciprocal sensory interaction between thick and fine afferent fibers.
CT Check Tags: Animal; Male; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.
*Choline Acetyltransferase: ME, metabolism
Dendrites: ME, metabolism
Dendrites: UL, ultrastructure
Immunohistochemistry
Microscopy, Electron
*Neurons, Afferent: EN, enzymology
Neurons, Afferent: UL, ultrastructure
Rats
Rats, Inbred Strains
*Spinal Cord: EN, enzymology
Spinal Cord: UL, ultrastructure
*Synapses: ME, metabolism

Synapses: UL, ultrastructure
CN EC 2.3.1. (Choline Acetyltransferase)

=> D 2 ALL

L20 ANSWER 2 OF 5 MEDLINE
AN 92379641 MEDLINE
TI Inhibition of a cutaneous nociceptive reflex by a noxious visceral stimulus is mediated by spinal cholinergic and descending serotonergic systems in the rat.
AU Zhuo M; Gebhart G F
CS Department of Pharmacology, College of Medicine, University of Iowa, Iowa City 52242..
NC NS 19912 (NINDS)
SO BRAIN RESEARCH, (1992 Jul 10) 585 (1-2) 7-18.
Journal code: B5L. ISSN: 0006-8993.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 9212
AB The present study examined the spinal pathway and receptors that mediate nocigenic inhibition of the tail-flick (TF) reflex produced by conditioning colorectal distension (CRD). Conditioning CRD (80 mmHg; 30 s) inhibited the TF reflex in all rats studied (n = 29). In 19 rats where intensity-dependent effects of CRD were studied, conditioning CRD in 7 rats facilitated the TF reflex at lesser, non-noxious intensities (mean 7.9 +/- 2.1 mmHg) and inhibited the TF reflex at greater, noxious intensities (40-100 mmHg); conditioning CRD at all intensities tested only inhibited the TF reflex in the other 12 rats. Inhibition of the TF reflex produced by 30 s CRD was short-lasting, repeatable and graded with the intensity of CRD. The mean threshold of CRD for inhibition of the TF reflex to cut off (10 s) was 61.4 +/- 3.3 mmHg (n = 29). Intrathecal pretreatment with atropine or methysergide significantly attenuated the inhibitory effect of CRD on the TF reflex; the effects were time- and dose-related. Intrathecal pretreatment with mecamlamine, phentolamine or naloxone was without effect. Intrathecal administration of physostigmine, an acetylcholinesterase inhibitor, significantly reduced the threshold intensity of conditioning CRD necessary to inhibit the TF reflex to cut off (mean 36.0 +/- 4.0 mmHg; n = 5). Bilateral transections of the spinal dorsolateral funiculi (DLF) did not affect the inhibitory effect of CRD in 4/7 rats and attenuated the inhibitory effect of CRD in the other 3 rats. The antagonistic effect of methysergide on CRD-produced inhibition of the TF reflex was abolished following the DLF transections, while scopolamine retained its efficacy in rats with bilateral DLF transections. These findings provide evidence for involvement of spinal cholinergic interneurons as well as a descending serotonergic pathway traveling in the DLF in CRD-produced inhibition of the TF reflex.
CT Check Tags: Animal; Male; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.
Balloon Dilatation
Colon: PH, physiology
Denervation
Efferent Pathways: PH, physiology
Injections, Spinal

*Neural Inhibition: PH, physiology
 *Nociceptor: PH, physiology
 Parasympathetic Nervous System: PH, physiology
 Parasympathomimetics: PD, pharmacology
 Rats
 Rats, Inbred Strains
 Rectum: PH, physiology
 *Reflex: PH, physiology
 Serotonin: PH, physiology
 *Skin: PH, physiology
 *Spinal Cord: PH, physiology
 *Viscera: PH, physiology
 RN 50-67-9 (Serotonin)
 CN 0 (Parasympathomimetics)

=> D 1 ALL

L20 ANSWER 1 OF 5 MEDLINE
 AN 96281645 MEDLINE
 TI Nonradial migration of interneurons can be experimentally altered in
 spinal cord slice cultures.
 AU Phelps P E; Barber R P; Vaughn J E
 CS Division of Neurosciences, Beckman Research Institute of the City of
 Hope, California 91010-0269, USA.
 NC NS 18858 (NINDS)
 SO DEVELOPMENT, (1996 Jul) 122 (7) 2013-22.
 Journal code: ECW. ISSN: 0950-1991.
 CY ENGLAND: United Kingdom
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 9610
 AB During development, many migrating neurons are thought to guide on
 radially oriented glia to reach their adult locations. However,
 members of the 'U-shaped' group of **cholinergic**
interneurons in embryonic rat **spinal cord**
 appeared to migrate in a direction perpendicular to the orientation
 of radial glia. This 'U-shaped' group of cells was located around
 the ventral ventricular zone on embryonic day 16 and, during the
 next two days, the constituent cells dispersed into the dorsal horn
 or around the central canal. During this period, these cells could
 be identified with either ChAT immunocytochemistry or
 NADPH-diaphorase histochemistry and they appeared to be aligned
 along commissural axons, suggesting that such processes, rather than
 radial glia, might guide their migration. An organotypic
spinal cord slice preparation was developed and
 utilized for three different experimental approaches to studying
 this migration. In the first experiments, slices of embryonic day 16
 cervical **spinal cord** were cultured for one, two
 or three days, and a relatively histotypic dorsal migration of
 'U-derived' cells could be inferred from these sequential cultures.
 A second set of experiments focused on the direct observation of
 dorsally directed migration in living **spinal cord**
 cultures. Embryonic day 16 slices were injected with a lipophilic
 fluorescent label near the dorsal boundary of the 'U-shaped' cell
 group and the dorsal movement of labeled cells was observed using
 confocal microscopy. These experiments confirmed the dorsal
 migratory pattern inferred from sequentially fixed specimens. A

third experimental approach was to transect embryonic day 16 slice cultures microsurgically in order to disturb the migration of 'U-derived' cells. Depending upon the amount of ventral spinal cord removed, the source of cells was excised and/or their guidance pathway was perturbed. The number and position of 'U-derived' cells varied with the amount of ventral cord excised. If more than 400 microns was removed, no 'U-derived' diaphorase-labeled cells were present, whereas if only 200-300 microns was removed, the cultures contained such cells. However, in this instance, many of the 'U-derived' neurons did not move as far dorsally, nor did they display their characteristic dorsoventral orientation. When results from these three experiments are taken together, they provide strong evidence that nonradial neuronal migration occurs in developing spinal cord and that the 'U-derived' neurons utilize such a migration to move from their ventral generation sites to their dorsal adult locations.

CT Check Tags: Animal; Female; Support, U.S. Gov't, P.H.S.

Biological Markers: AN, analysis

*Cell Movement: PH, physiology

Choline Acetyltransferase: ME, metabolism

Histocytochemistry

Immunohistochemistry

Interneurons: CY, cytology

*Interneurons: PH, physiology

Microscopy, Confocal

Microsurgery

NADPH Dehydrogenase: AN, analysis

Organ Culture

Pregnancy

Rats

Rats, Sprague-Dawley

Spinal Cord: CY, cytology

*Spinal Cord: EM, embryology

Spinal Cord: PH, physiology

Spinal Cord: SU, surgery

CN EC 1.6.99.1 (NADPH Dehydrogenase); EC 2.3.1.6 (Choline Acetyltransferase); 0 (Biological Markers)